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that while the coater did need to run slower to accomplish complete dryness, the speed reduction was not the magnitude expected.

Another benefit discovered when utilizing the lower density (less coating mass covering more glass mat volume) 5 coating was that when used as a facer for gypsum its porosity was perfect. This means it was dense enough to prevent gypsum slurry from penetrating, yet not too dense to causes the facer to blow off from escaping steam.

The enhanced tensile strength coated glass mat advantageously has the ability to intertwine with a gypsum slurry and to combine to produce a high flexural strength in a three-dimensional board, made of gypsum or other core materials such as thermoplastic or thermosetting plastics. The coated glass mat or web also has good weather-proof characteristics, while at the same time having excellent mold-growth resistance. 10

The enhanced tensile strength coated glass mat has enough porosity to allow the gypsum to "breathe-out" water vapor while still processing yet not allow gypsum slurry to leak 15 through into the processing machinery.

Thus, an improvement that was anticipated to be much more costly and generally onerous to manufacture turned out to be only slightly more costly and no more difficult to produce. 20

Further, the enhanced tensile strength coated glass mat has enough fibers available to bond well with the cured gypsum, without leaving too much glass fiber thickness such that the wet gypsum slurry does not penetrate enough to cover all the loose fibers. 25

While providing the above mentioned desirable properties, the coated glass mat/facer remains a low-cost product due, e.g., to its using economy grade limestone in rich abundance and very little of the high-cost polymer latexes. 30

While the invention has been described in connection with what is presently considered to be the most practical and preferred embodiment, it is to be understood that the invention is not to be limited to the disclosed embodiment, but on the contrary, is intended to cover various modifications and equivalent arrangements included within the spirit and scope 35 of the appended claims. 40

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The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A coated glass mat comprising:

a glass mat substrate having non-woven glass fibers; and a coating comprising latex binder and inorganic pigment, said coating being present in an amount of about 61 lbs/MSF to about 75 lbs/MSF and being only partially permeated into said substrate while also imparting a tensile strength to the coated glass mat which on average is at least 1.33 times greater than the tensile strength of the glass mat substrate without the coating, wherein the coating comprises a coating blend which provides the coated glass mat with a porosity sufficient to allow water vapor to escape from a gypsum slurry when heated.

2. The coated glass mat of claim 1, wherein the coating further comprises an inorganic binder.

3. The coated glass mat of claim 1, wherein said non-woven glass mat weighs between about twelve pounds per thousand square feet and about fifty pounds per thousand square feet.

4. The coated glass mat of claim 1, wherein the glass mat substrate before coating weighs about fourteen and a half (14.5) pounds per thousand square feet and wherein after coating the coated glass mat has a tensile strength which on average is greater than one hundred twenty pounds per three-inch width. 25

5. The coated glass mat of claim 1, wherein the glass mat substrate before coating weighs about twenty-six and a half (26.5) pounds per thousand square feet and wherein after coating the coated glass mat has a tensile strength which on average is greater than two hundred twenty pounds per three-inch width. 30

6. The coated glass mat of claim 1, wherein penetration of the coating into the glass mat substrate extends a depth of from twenty five percent of a thickness of the coated glass mat to seventy five percent of the thickness of the coated glass mat. 35

7. The coated glass mat of claim 1, wherein the coating uniformly penetrates the glass mat substrate to a desired fractional thickness of the coated glass mat. 40

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